



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

09/994,860

11/28/2001

Ronald D. Blum

027001-000310US

9812

20350 7590 09/13/2010
TOWNSEND AND TOWNSEND AND CREW, LLP
TWO EMBARCADERO CENTER
EIGHTH FLOOR
SAN FRANCISCO, CA 94111-3834

EXAMINER

BOECKMANN, JASON J

ART UNIT

PAPER NUMBER

3752

MAIL DATE

DELIVERY MODE

09/13/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.



UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 09/994,860
Filing Date: November 28, 2001
Appellant(s): BLUM ET AL.

James E. Golladay
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 7/15/2010 appealing from the Office action mailed 10/13/2009.

(1) Real Party in Interest

The examiner has no comment on the statement, or lack of statement, identifying by name the real party in interest in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The following is a list of claims that are rejected and pending in the application:

1-17 and 33-36

Claim 37 is withdrawn

(5) Summary of Claimed Subject Matter

The examiner has no comment on the summary of claimed subject matter contained in the brief.

(6) Grounds of Rejection to be Reviewed on Appeal

The examiner has no comment on the appellant's statement of the grounds of rejection to be reviewed on appeal. Every ground of rejection set forth in the Office action from which the appeal is taken (as modified by any advisory actions) is being maintained by the examiner except

Art Unit: 3752

for the grounds of rejection (if any) listed under the subheading "WITHDRAWN REJECTIONS." New grounds of rejection (if any) are provided under the subheading "NEW GROUNDS OF REJECTION."

(7) Claims Appendix

The examiner has no comment on the copy of the appealed claims contained in the Appendix to the appellant's brief.

(8) Evidence Relied Upon

Declaration Under Rule 132 of Neil Rondorf ("Rondorf Declaration").

Declaration Under Rule 132 of Vickie Singleton ("Singleton Declaration").

Declaration Under Rule 132 of Isaac Ginis ("Ginis Declaration").

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 101

Claims 1-17 and 33-36 stands rejected under 35 U.S.C. 101 because the disclosed invention is wholly inoperative and therefore lacking credible utility. What has been disclosed is a concept more in the realm of speculation and conjecture rather than the reduction of an idea to a practical application based on science and technology.

Regarding claim 1, appellant recites a method of making a reduced intensity hurricane by positioning a plurality of submersibles in a hurricane interception area; maneuvering the submersibles to a predetermined depth and releasing a gas during a predetermined amount of time, the gas forming bubbles which rise in plume toward a surface to cool the surface of the ocean, thereby reducing the intensity of the hurricane. In order for an invention or process to have credible utility, the appellant's disclosure must contain sufficient evidence and reasoning to permit a person of ordinary skill in the art to believe the asserted utility. In this case, the application does not contain sufficient information to permit a person of ordinary skill in the art to believe that the process disclosed either could be implemented or could achieve the asserted useful result, since appellant has shown no evidence of reducing the speculation and conjecture to practice in either a laboratory or natural environment setting. For example, taking into consideration the enormous size of a hurricane, the process of modifying a hurricane disclosed by appellant would take more than the resources realistically available to mankind.

On the issue of compliance with the utility requirement of 35 U.S.C. 101, the following statement made by the Supreme Court of the United State is on point:

"This is not to say that we mean to disparage the importance of contributions to the fund of scientific information short of the invention of something "useful", or that we are blind to the prospect that what now seems without "use" may tomorrow command the grateful attention of the public. But a patent is not a hunting license. It is not a reward for the search, but compensation for its successful conclusion. "[A] patent system must be related to the world of commerce rather than to the realm of philosophy".

See, Brenner v. Manson, 148 USPQ 689, 696 (US SupCt 1966).

Claim Rejections - 35 USC § 112

Claims 1-17 and 33-36 stand rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which is most nearly connected to make and/or use the invention.

Since the asserted utility is not credible for the reason set forth above, one skilled in the art would not know how to make and/or use the claimed invention. For example, in claim 1, the assertion that reducing the hurricane intensity by using the submersibles to release a gas to form a plume to cool the surface of the ocean and thereby, to reduce the intensity of the hurricane, is not feasibly supported by the specification in exact terms (i.e. the grand scale or vast area of the release site, the amount of gas that is required to affect the hurricane, the number of submersibles required for the process, etc.).

Furthermore, the standard for enablement is whether a person skilled in the art would have sufficient information from the application disclosure to make and use the claimed invention without undue experimentation. In this case, the amount of experimentation necessary to perform the process disclosed would be undue. Undue experimentation would be necessary because:

- The claimed invention is broad and sweeping in scope.
- The nature of the invention is a large-scale environment change.

Art Unit: 3752

- The level of one ordinary skill in the art is best characterized as that of a theoretical scientist dealing in probabilities and possibilities rather than that of an engineer dealing in practical applications of technology.
- The outcome of the disclosed concept is entirely unpredictable.
- The application is devoid of working examples.
- The quantity of experimentation needed to use the invention based on the content of the disclosure can only be characterized as astronomical considering the lack of background information, past experiment, and specific detail.

(10) Response to Argument

A. The Appellant Argues the 35 USC § 101 Rejection

The appellant's main argument concerning 35 USC 101 is that the examiner does not set forth a proper *prima facie* case showing lack of credible utility. The examiner respectfully disagrees. It is noted that the examiner has made the record clear that the present application, as well as the evidence relied upon by the appellant, does not contain sufficient information to permit a person of ordinary skill in the art to believe that the process disclosed either could be implemented or could achieve the asserted useful result. Appellant has shown no credible evidence of reducing the speculation and conjecture to practice in either a laboratory or natural environment setting. In other words, the appellant has not made a case that his invention will produce a reduced intensity hurricane or reduce the intensity of an already existing hurricane.

It is noted that the appellant has proffered speculative "facts" of the number of submersibles, and the amount of liquid carbon dioxide gas needed for the surface temperature of a given area to drop 2.5 degrees Celsius. However, the examiner questions the credibility of these statistics in a real world environment. The appellant's calculations beginning on paragraph 40 of the specification are based on estimates of the required degree of ocean temperature reduction, the extent of area in which temperature reduction must be achieved and the temperature of the upwelling water. However, it is not entirely known if the resulting calculations from these estimates will actually produce a reduced intensity hurricane or

reduce the intensity of an already existing hurricane. These estimates are based on theoretical modelings which have been discussed in the Ginis and Singleton declarations. In both these declarations, the calculations are based on numerical modeling and extrapolation of experiments done at a much smaller scale than in an actual ocean. In a real world situation, it is nearly impossible to accurately forecast how many degrees the ocean surface temperature will lower in an area as large as 180 by 540 km (paragraph 50), or how much liquid carbon dioxide would be required to achieve such temperature lowering, or even if lowering the temperature would have an impact on a hurricane. There are many other factors that the appellants have not taken into consideration when the scale of an experiment is magnified by such an extent.

The appellant also argues that the MPEP states that a conclusion that an asserted utility is incredible can be reached only after the Office has evaluated both the assertion of the appellant regarding utility and any evidentiary basis of that assertion." MPEP § 2107.02 (III B). Therefore, the examiner has carefully weighed and evaluated the evidence including the entire disclosure and all the evidence of record. Upon careful consideration of the evidence as a whole, and weighing it anew, the evidence supports a conclusion that the claims lack credible utility.

B. The Appellant Argues the 35 USC § 112 First Paragraph Rejection

The appellant's main argument concerning 35 USC 112 first paragraph is that the examiner has not established a *prima facie* showing for lack of enablement. The examiner respectfully disagrees. Again, the examiner questions whether or not the appellant's disclosure

Art Unit: 3752

and evidence provided are sufficient for one of ordinary skill in the art to make and/or use the invention. In this case, the examiner must consider whether the invention achieves the end result of actually making a reduced the intensity hurricane (claim 1) or reducing the intensity of a hurricane (claims 8 and 14).

Starting with claim 1 and its dependent claims, the examiner would like to point out that the disclosure as well as the declarations discloses nothing as to how the present invention enables one in a “method of making a reduced intensity hurricane”. The disclosure basically talks about bubbling up gas from below the ocean’s surface to cool the ocean’s surface, but is completely silent as to how that will actual make a hurricane. It is unclear what steps are required to make a hurricane, and how one of ordinary skill in the art would do so with the information provided in the appellant’s disclosure.

Regarding claims 8 and 14 and their dependent claims, these claims are directed to what appears to be what appellant is arguing they’ve invented (i.e., a method of reducing the intensity of a hurricane rather than actually making the hurricane as recited in claims 1-7, 33, and 34). The specification describes a method of using submersibles to plume up liquid carbon dioxide from below the surface to cool the water at the surface of the ocean, but does not provide sufficient disclosure to actually reduce the intensity of a hurricane. The specification provides cursory information to perform some method steps, but does not enable one of ordinary skill in the art to reduce the intensity of a hurricane. As stated above, the specification and provided declarations that they are all based on numerical modeling and small scale experimentation. None of the data or calculations come from any experiments performed in real-world conditions or necessarily scalable to real-world conditions.

Since all the appellant's calculations concerning the number of submersibles, the amount of liquid carbon dioxide needed and the temperature of the ocean are all based on small scale experimentation and numerical modeling, it is uncertain if the resulting statements in the disclosure will lead to reducing the intensity of a hurricane.

An analysis of the three, disjointed declarations (see section C below) reveals that the calculations are in error by (at least) a few orders of magnitude. Furthermore, there are additional holes in appellant's conceptual ideas that appear to be awaiting a future inventor to reduce to practice. For example, how can the appellant (or one of ordinary skill in the art attempting to make and/or use the invention) know exactly where a hurricane will or will not form? Or know exactly where to set up their invention to reduce the surface temperature? What happens if the hurricane forms and then travels in a completely different direction? What happens if ocean temperatures are not consistent throughout its depths, or throughout the area that needs to be up-welled? What happens if the sun (or ambient air) warms up the surface of the water just as fast, or faster than the cool water is being up-welled, would the temperature of the surface be reduced? How much does the average temperature need to drop over such a large area to actually reduce the intensity of a hurricane? Is lowering the average temperature enough, or does all of the water in the specified area need to be below a certain temperature? Also, if the average temperature is dropped by the specified value, what effect does that have on an already formed hurricane, does the hurricane just change course, does it strengthen, or does it actually reduce in intensity? These are all questions that the appellant has overlooked in the disclosure and are important in determining if the invention is enabled or not.

Without future advancement by other parties in prediction of hurricane development, hurricane tracking, predictions in hurricane movement (with or without changes in the local environment), upwelling effects on large scales, upwelling effects through large columns of water that may be a varying temperature, etc., appellant's analysis is off by many additional orders of magnitude. An appellant awaiting future technology developments, by other parties, is the epitome of undue experimentation. Given the errors in appellant's calculations coupled with the fact they are awaiting key technology developments by other parties, it is more likely than not that one of ordinary skill in the art could not make and/or use the claimed invention.

C. The Examiner Addresses the Declarations Provided

The declarations by Isaac Ginis Ph.D., Captain Neil E. Rondorf and Vickie Lien Singleton under 37 CFR 1.132 filed 11/5/2007 are insufficient to overcome the rejection of claims 1-17 and 33-36 based upon 35 U.S.C. 101 and 35 U.S.C. 112, first paragraph as set forth in the last Office action.

In response to the appellant's argument that the three declarations filed on 11/5/2007 establish the utility and enablement of the claimed subject matter, the examiner respectfully disagrees.

It is the examiner's position that the three declarations present facts that are unconnected and do not establish utility or enablement of the claimed subject matter. It appears that the appellant is using the declaration by Isaac Ginis Ph.D., to show through numeric modeling that the reduction of the surface temperature by 2.5 degrees would reduce the intensity of a hurricane, the declaration by Captain Neil E. Rondorf to show that the technology exists to convert existing

Art Unit: 3752

submarines into gas carrying vessels, and the declaration by Vickie Lien Singleton to show that upwelling large quantities of gas in open water will lower the surface temperature of the water. However, it is the examiner's position that none of the declarations either alone, or in combination with the other two, provide sufficient evidence to make a reduced intensity hurricane (claim 1) or reduce the intensity of a hurricane (claims 8 and 14). Given the preponderance of evidence before the examiner, it is more likely than not that the claimed invention does not have credible utility and that one skilled in the art would require undue experimentation to make and/or use the claimed invention.

Isaac Ginis Ph.D. merely shows numerical modeling of how a reduction of sea surface temperatures by 2.5 degrees would affect a numerical model of a hurricane. It is understood that if the surface temperature of the ocean in the area that the hurricane drops 2.5 degrees the hurricane will reduce in intensity. However the claims were rejected for being inoperative and lacking credible utility as well as lacking enablement. Isaac Ginis Ph.D. does not address the rejections at hand and does not address how the claimed invention is capable of reducing the sea surface temperatures by 2.5 degrees, or if the present invention contains a disclosure sufficient to enable one of ordinary skill in the art to reduce the surface temperatures by 2.5 degrees.

Captain Neil E. Rondorf explains how the technology exists to convert existing submarines to carry gas. It is understood by the examiner that this technology exists. However, there appears to be a flaw in Captain Rondorf's reasoning on how many submersibles would be needed in order to carryout the claimed invention. Captain Rondorf asserts that the US Navy has successfully towed a naval research vessel NR-1 which has an approximately volume of 32,400 cubic feet (917 cubic meters), but bases his calculations on using a Typhoon hull which has a

volume of approximately 73,000 cubic meters. It will take approximately 73 NR-1 vessels to provide the amount of gas that one Typhoon hull can provide, therefore, the calculations presented on page 5 of the declaration are off by a factor of about 73.

Additionally, if one were to use Captain Neil E. Rondorf's calculations for the Typhoon hull; Rondorf is only calculating the number of submersibles required to provide the amount of upwelling that is mentioned in the specification, not the amount of gas required to lower the surface temperature of the ocean to be effected by a hurricane by 2.5 degrees to thereby reduce the intensity of, or form a reduced intensity hurricane. So if 1.4 million m³ of liquid CO₂ is required, Rondorf correctly calculates that only 19.17, or 20 submarines will be required, however, Rondorf does not show or explain how upwelling 1.4 million m³ of liquid CO₂ will reduce the intensity of a hurricane.

The examiner also points out that there is a discrepancy between the appellant's arguments filed on 9/15/2004 and the above mentioned declaration. The appellant stated on the record that "submersibles of the kind required for this application do not presently exist" (page 13, lines 9-12), which clearly indicates that at the time of the invention, the appellants were not in possession of the technology and resources to make and or use the claimed submersibles. However, Captain Rondorf asserts that these submersibles already exist and have been in use on or before the filing of the present application. Captain Rondorf is not a named inventor in the present application, and therefore the appellant cannot rely on him as a third party to provide some of the experimentation necessary to make a workable device and method.

The Rondorf declaration does not appear to discuss how these 19 or 20 submarines bubbling up 1.4 million m^3 of liquid CO_2 will be able to replace 23 percent of the water in a volume that is 180 km by 540 km by 70 km deep, as mentioned in the specification (page 12).

The declaration by Vickie Lien Singleton correctly calculates the number of linear and circular diffusers needed to up-well at a rate of at least 12.1 million cubic meters per second, but does not explain, show or prove how upwelling water at a rate of 12.1 million m^3/s will reduce the intensity of a hurricane. The specification and the Ginis declaration both require that the surface temperature of the ocean be reduced 2.5 degrees for the intensity of the hurricane to be reduced. Nowhere in the Singleton declaration does Ms. Singleton show that upwelling water at a rate of 12.1 million m^3/s will reduce the surface temperature of the ocean. There appears to be no fact tying the upwelling of the ocean water to a specific temperature drop in the surface of the ocean.

It is also noted that the present invention does not use the exact methods or diffusers that are being used in Ms. Singleton's calculations. The appellants even go as far as to admit, that the bubble plume methods of their invention have never been used in open-ocean, upper water column environments (specification, paragraph 28). If that is truly the case, then the calculations of Ms Singleton cannot properly be used to model the present invention.

Lastly, it is noted that Ms. Singleton calculates that 233 linear or 236 circular diffusers would be needed to perform such upwelling. However, the declaration submitted by Captain Rondorf, discussed above, estimates that only 19 submersibles would be required to supply the proper amount of gas. That would mean that each submersible would need to have

Art Unit: 3752

approximately 12 diffusers connected to its outer shell. It is also noted that the size of each diffuser is approximately the surface area of each of the Typhoon submarines. How can one sub have twelve diffusers? The specification appears to only have support for each submersible having a single diffuser. Ms. Singleton also calculates that 100 million m^3 of liquid CO_2 would be required to up well from the 233 diffusers at the desired rate. This is a much larger amount of CO_2 than is required by the Rondorf declaration.

So in conclusion the declarations provide specific facts to show that, if you have 20 converted Typhoon submarines you can carry 1.4 million m^3 of liquid CO_2 and if you had 233 linear diffusers (12 diffusers per submarine), each diffuser being approximately the size of one Typhoon submarine, you can up well 1.4 million m^3 of liquid CO_2 at a rate of 12.1 million m^3/s only if you had 100 million m^3 of liquid CO_2 . Even if you had enough liquid CO_2 , you would only be reducing the surface temperature of the ocean by an unspecified amount, not necessarily enough to reduce the intensity, or form a reduced intensity hurricane.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Jason J Boeckmann/
Examiner, Art Unit 3752
9/2/2010

Application/Control Number: 09/994,860

Page 16

Art Unit: 3752

Conferees:

/Len Tran/

Supervisory Patent Examiner, Art Unit 3752

/Kevin P. Shaver/

Supervisory Patent Examiner, Art Unit 3754